

Claims

1 Sub B¹ > 1. An article of equipment, such as a roll or bearing, intended to be
2 submerged in molten zinc and low percentage aluminum/zinc melts, said
3 article containing a steel alloy material having at least one element selected
4 from the group consisting of carbon, chromium, nickel, tungsten, molybdenum,
5 vanadium, niobium (columbium), cobalt, boron, iron and zirconium.

2 2. An article formed of an alloy as defined in Claim 1⁵⁰, in which the
3 alloy has a carbon element which is greater than 1.6% and less than 2.6% by
4 weight. G

2 3. An article formed of an alloy as defined in Claim 1⁵⁰, in which the
3 alloy has a chromium element which is greater than 15% and less than 30%
4 by weight.

1 Sub B² > 4. An article formed of an alloy as defined in Claim 1, in which the
2 alloy has a nickel element which is equal to or greater than 0% and less than
3 30% by weight.

1 2 501 5. An article formed of an alloy as defined in Claim 1⁵⁰, in which the
2 alloy has a tungsten element which is greater than 10% and less than 30% by
3 weight.

1 4 6. An article formed of an alloy as defined in Claim 1, in which the
2 alloy has a molybdenum element which is greater than 2% and less than 8%
3 by weight.

1 Sub B3 7. An article formed of an alloy as defined in Claim 1, in which the
2 alloy has a vanadium element which is equal to or greater than 0% and less
3 than 6% by weight.

1 8. An article formed of an alloy as defined in Claim 1, in which the
2 alloy has a niobium element which is equal to or greater than 0% and less than
3 6% by weight.

1 9. An article formed of an alloy as defined in Claim 1, in which the
2 alloy has a cobalt element which is equal to or greater than 0% and less than
3 20% by weight.

1 10. An article formed of an alloy as defined in Claim 1, in which the
2 alloy has a boron element which is equal to or greater than 0% and less than
3 5% by weight.

1 D2 11. An article formed of an alloy as defined in Claim 1, in which the
2 alloy has an iron element which is greater than 10% and less than 50% by
3 weight.

1 *Sub 4* 12. An article formed of an alloy as defined in Claim 1, in which the
2 alloy has a zirconium element which is equal to or greater than 0% and less
3 than 6% by weight.

1 13. An article of galvanizing equipment submerged in a
2 zinc/aluminum alloy melt containing less than 5% aluminum and formed of an
3 alloy as defined in Claim 1, in which the alloy has a carbon element which is
4 greater than 1.9% and less than 2.3% by weight.

1 14. An article of galvanizing equipment submerged in a
2 zinc/aluminum alloy melt containing less than 5% aluminum and formed of an
3 alloy as defined in Claim 1, in which the alloy has a chromium element which
4 is greater than 24% and less than 30% by weight.

1 15. An article of galvanizing equipment submerged in a
2 zinc/aluminum alloy melt containing less than 5% aluminum and formed of an
3 alloy as defined in Claim 1, in which the alloy has a nickel element which is
4 greater than 18% and less than 26% by weight.

1 16. An article of galvanizing equipment submerged in a
2 zinc/aluminum alloy melt containing less than 5% aluminum and formed of an
3 alloy as defined in Claim 1, in which the alloy has a tungsten element which
4 is greater than 15% and less than 25% by weight.

1 17. An article of galvanizing equipment submerged in a
2 zinc/aluminum alloy melt containing less than 5% aluminum and formed of an
3 alloy as defined in Claim 1, and in which the alloy has a molybdenum element
4 which is greater than 4% and less than 8% by weight.

1 18. An article of galvanizing equipment submerged in a
2 zinc/aluminum alloy melt containing less than 5% aluminum and formed of an
3 alloy as defined in Claim 1, and in which the alloy has a vanadium element
4 which is greater than 4% and less than 6% by weight.

1 19. An article of galvanizing equipment submerged in a
2 zinc/aluminum alloy melt containing less than 5% aluminum and formed of an
3 alloy as defined in Claim 1, in which the alloy has a niobium element which
4 is equal to or greater than 0% and less than 2% by weight.

1 20. An article of galvanizing equipment submerged in a
2 zinc/aluminum alloy melt containing less than 5% aluminum and formed of an
3 alloy as defined in Claim 1, in which the alloy has a cobalt element which is
4 equal to or greater than 0% and less than 6% by weight.

1 21. An article of galvanizing equipment submerged in a
2 zinc/aluminum alloy melt containing less than 5% aluminum and formed of an
3 alloy as defined in Claim 1, in which the alloy has a boron element which is

4 equal to or greater than 0% and less than 1% by weight.

1 22. An article of galvanizing equipment submerged in a
2 zinc/aluminum alloy melt containing less than 5% aluminum and formed of an
3 alloy as defined in Claim 1, in which the alloy has an iron element which is
4 greater than 18% and less than 24% by weight.

1 23. An article of galvanizing equipment submerged in a
2 zinc/aluminum alloy melt containing less than 5% aluminum and formed of an
3 alloy as defined in Claim 1, in which the alloy has a zirconium element which
4 is equal to or greater than 0% and less than 6% by weight.

1 B 24. An article ~~of galvanizing equipment~~ submerged in a
2 zinc/aluminum alloy melt containing more than 50% aluminum and formed of
3 an alloy as defined in Claim 1, in which the alloy has a carbon element which
4 is greater than 1.9% and less than 2.3% by weight.

1 B 25. An article ~~of galvanizing equipment~~ submerged in a
2 zinc/aluminum alloy melt containing more than 50% aluminum and formed of
3 an alloy as defined in Claim 1, in which the alloy has a chromium element
4 which is greater than 16% and less than 24% by weight.

1 B 26. An article ~~of galvanizing equipment~~ submerged in a

2 zinc/aluminum alloy melt containing more than 50% aluminum and formed of
3 an alloy as defined in Claim 1, in which the alloy has a nickel element which
4 is equal to or greater than 0% and less than 2% by weight.

1 B 27. An article ~~of galvanizing equipment~~ submerged in a
2 zinc/aluminum alloy melt containing more than 50% aluminum and formed of
3 an alloy as defined in Claim 1, in which the alloy has a tungsten element
4 which is greater than 15% and less than 25% by weight.

1 B 28. An article ~~of galvanizing equipment~~ submerged in a
2 zinc/aluminum alloy melt containing more than 50% aluminum and formed of
3 an alloy as defined in Claim 1, in which the alloy has a molybdenum element
4 which is greater than 4% and less than 8% by weight.

1 B 29. An article ~~of galvanizing equipment~~ submerged in a
2 zinc/aluminum alloy melt containing more than 50% aluminum and formed of
3 an alloy as defined in Claim 1, in which the alloy has a vanadium element
4 which is greater than 4% and less than 6% by weight.

1 B 30. An article ~~of galvanizing equipment~~ submerged in a
2 zinc/aluminum alloy melt containing more than 50% aluminum and formed of
3 an alloy as defined in Claim 1, in which the alloy has a niobium element which
4 is equal to or greater then 0% and less than 2% by weight.

1 B 31. An article ~~of galvanizing equipment~~ submerged in a
2 zinc/aluminum alloy melt containing more than 50% aluminum and formed of
3 an alloy as defined in Claim 1, in which the alloy has a cobalt element which
4 is equal to or greater than 0% and less than 15% by weight.

1 B 32. An article ~~of galvanizing equipment~~ submerged in a
2 zinc/aluminum alloy melt containing more than 50% aluminum and formed of
3 an alloy as defined in Claim 1, in which the alloy has a boron element which
4 is equal to or greater than 0% and less than 2% by weight.

1 B 33. An article ~~of galvanizing equipment~~ submerged in a
2 zinc/aluminum alloy melt containing more than 50% aluminum and formed of
3 an alloy as defined in Claim 1, in which the alloy has an iron element which is
4 greater than 35% and less than 45% by weight.

1 Sub B5 34. An article formed of an alloy as defined in Claim 1, in which the
2 alloy has a zirconium element which is equal to or greater than 0% and less
3 than 6% by weight.

1 5 35. An article formed of an alloy as defined in Claim 1, in which the
2 amount of the article lost due to molten metal dissolution is less than 4×10^{-5}
3 inches per hour.

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C2

36. An article formed of an alloy as defined in Claim 1, in which the

selected element is in a carbide form of the element.

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~~37~~. An article formed of an alloy as defined in Claim ~~1~~, having a

Rockwell hardness greater than 40.

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~~38~~. An article formed of an alloy as defined in Claim ~~1~~, in which the

alloy is centrifugally castable.

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39. An article formed of an alloy as defined in Claim 1, in which the

alloy is machinable.

add B6

add C3
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